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10/767,495	01/28/2004	Satoru Yamada	2107.69199	5067

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Patrick G. Burns, Esq.  
GREER, BURNS & CRAIN, LTD.  
Suite 2500  
300 South Wacker Dr.  
Chicago, IL 60606

EXAMINER

CHANDRAN, BIJU INDIRA

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/767,495	Applicant(s) YAMADA, SATORU	
	Examiner Biju Chandran	Art Unit 2835	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/28/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 11 and 22 recites the limitation ""said second exhaust part". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

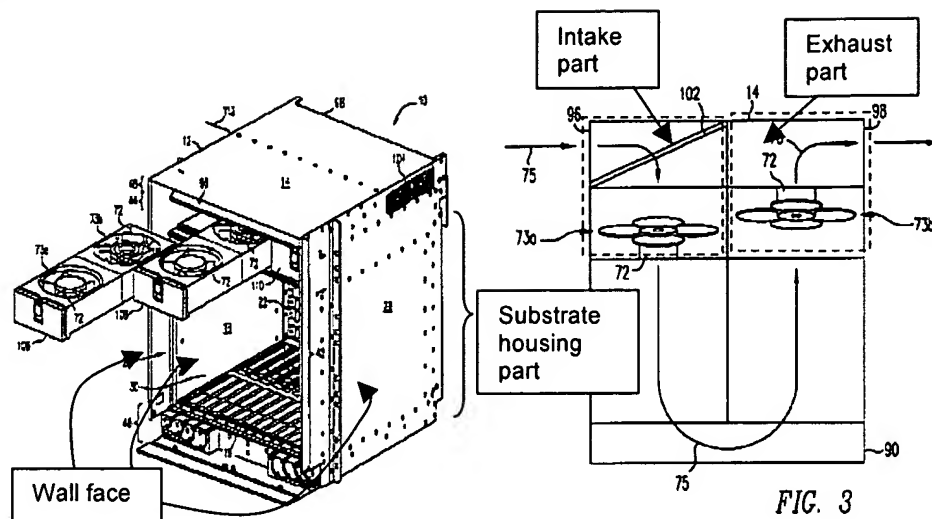
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-3, 5, 7, 9-14, 16, 18, and 20-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Nguyen et al. (US Patent 6,594,148 B1).



- Regarding claim 1, Nguyen discloses a cooling structure of an electronic equipment needing forced-air-cooling comprising: substrate (22) housing parts detachably housing therein one or plurality of substrate units (120); upstream side duct (96) provided at upstream side of air for cooling which is allowed to flow to said substrate housing parts; downstream side duct (98) for allowing the air for cooling which passed from said upstream side duct through said substrate housing parts flow; exhaust means ('73b' of parts 106 and 108, see figure 2 and 3) provided at an exhaust part for allowing said downstream side duct to open an outside to forcibly discharge air in said substrate housing parts to the outside air, thereby allowing the air for cooling to flow to said substrate housing parts; and air adjusting means (88) for adjusting the air (column 4, lines 45-60) for cooling which passes from said upstream side duct to said downstream side duct through said substrate housing parts.

- Regarding claim 2, Nguyen further discloses that the air adjusting means (88) is installed in either a first boundary part where said substrate housing parts and said downstream side duct contact each other or a second boundary part where said substrate housing parts and said upstream side duct contact each other (shown schematically in figures 3, 5A, 5B, 5C, and 6) thereby adjusting a volume of entire air for cooling which flows to said substrate housing parts or adjusting the volume of air corresponding to said substrate units to be installed (column 5, lines 10-20).
- Regarding claim 3, Nguyen further discloses that the said air adjusting means changes exhaust capacity of the exhaust means (column 4, lines 5-12).
- Regarding claim 5, Nguyen further discloses that the said air adjusting means sets sizes (column 4, lines 55-60) or the number of air openings (column 5, lines 10-20) through which the air for cooling passes corresponding to said substrate units.
- Regarding claim 7, Nguyen discloses a cooling structure of an electronic equipment (10) needing forced-air-cooling comprising: substrate (22) housing parts detachably housing therein one or plurality of substrate units (120); an upstream side duct (96) for allowing air for cooling to flow to said substrate housing parts; a downstream side duct (98) for allowing the air for cooling which passed

through said substrate housing parts to flow; first exhaust means ('73b' of parts 106 and 108, see figure 2 and 3) provided at a first exhaust part for allowing said downstream side duct to open to an outside air to forcibly discharge air in said substrate housing parts to the outside air, thereby allowing the air for cooling to flow to said substrate housing parts; a housing unit (110) detachably installed in said downstream side duct; and second exhaust means ('73b' of part 110, see figure 2 and 3) for allowing the air for cooling to flow from said downstream side duct into said housing unit by exhausting air from a second exhaust part (outlet of '73b' of part 110) for allowing said housing unit to open to the outside air.

- Regarding claim 9, Nguyen discloses a cooling structure of an electronic equipment (10) needing forced-air-cooling comprising: substrate (22) housing parts installed in a housing to detachably house therein substrate units (120); an upstream side duct (96) provided at the upstream side of air for cooling which is allowed to flow to said substrate housing parts; a downstream side duct (98) for allowing the air for cooling, which passed through said substrate housing parts from said upstream side duct, to flow; an intake part (marked in figure) for guiding the air for cooling to said upstream side duct; an exhaust part (marked in figure) for exhausting the air for cooling from said downstream side duct; exhaust means ('73b' of parts 106 and 108, see

figure 2 and 3) installed in said exhaust part for forcibly discharging air in said housing to an outside air to allow the air for cooling to flow to said substrate housing parts; and air adjusting means (88) for adjusting the air for cooling which flows from said upstream side to said downstream side duct through said substrate housing parts.

- Regarding claim 10, Nguyen further discloses that the housing unit is provided with an intake part which is allowed to open to said downstream side duct (intake part is allowed to open to the downstream side duct through the substrate housing part), and intake fans ('73a' of parts 106 & 108, see figure 2 and 3) are installed at said intake part.
- Regarding claim 11, Nguyen discloses an electronic equipment (10) needing forced-air-cooling comprising: substrate (22) housing parts for detachably housing therein substrate units (120) from a wall face side of a housing; an upstream side duct (96) provided at the upstream side of air for cooling which is allowed to flow to said substrate housing parts; a downstream side duct (98) for allowing the air for cooling, which passed through said substrate housing parts from said upstream side duct, to flow; a ventilation part (102) provided at the wall face of said housing for allowing said upstream side duct to open to an outside air; a first exhaust part provided at the wall face of said housing for allowing said downstream side duct to open to the outside air; first

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exhaust means ('73b' of parts 106 and 108, see figure 2 and 3) provided at said first exhaust part to forcibly discharge air in said housing to the outside air to allow the air for cooling to flow to said substrate housing parts; air adjusting means (88) for adjusting the air for cooling which flows from said upstream side duct to said downstream side duct through said substrate housing part; a housing unit (110) installed on said downstream side duct for housing a circuit unit; and second exhaust means ('73b' of part 110) provided in said housing unit or housing for exhausting air from the second exhaust part (outlet of '73b' of part 110) of said housing by allowing the air for cooling to flow to said housing unit.

- Regarding claim 12, Nguyen discloses an information processing equipment (column 1, lines 36-41) comprising: substrate (22) housing parts detachably housing therein one or plurality of substrate units (120); upstream side duct (96) provided at upstream side of air for cooling which is allowed to flow to said substrate housing parts; downstream side duct (98) for allowing the air for cooling which passed from said upstream side duct through said substrate housing parts flow; exhaust means ('73b' of parts 106 and 108, see figure 2 and 3) provided at an exhaust part for allowing said downstream side duct to open an outside to forcibly discharge air in said substrate housing parts to the outside air, thereby allowing the air for cooling to flow to



said substrate housing parts; and air adjusting means (88) for adjusting the air (column 4, lines 45-60) for cooling which passes from said upstream side duct to said downstream side duct through said substrate housing parts.

- Regarding claim 13, Nguyen further discloses that the air adjusting means (88) is installed in either a first boundary part where said substrate housing parts and said downstream side duct contact each other or a second boundary part where said substrate housing parts and said upstream side duct contact each other (shown schematically in figures 3, 5A, 5B, 5C, and 6) thereby adjusting a volume of entire air for cooling which flows to said substrate housing parts or adjusting the volume of air corresponding to said substrate units to be installed (column 5, lines 10-20).
- Regarding claim 14, Nguyen further discloses that the said air adjusting means changes exhaust capacity of the exhaust means (column 4, lines 5-12).
- Regarding claim 16, Nguyen further discloses that the said air adjusting means sets sizes (column 4, lines 55-60) or the number of air openings (column 5, lines 10-20) through which the air for cooling passes corresponding to said substrate units.
- Regarding claim 18, Nguyen discloses an information processing equipment (column 1, lines 36-41) comprising: substrate (22) housing

parts detachably housing therein one or plurality of substrate units (120); an upstream side duct (96) for allowing air for cooling to flow to said substrate housing parts; a downstream side duct (98) for allowing the air for cooling which passed through said substrate housing parts to flow; first exhaust means ('73b' of parts 106 and 108, see figure 2 and 3) provided at a first exhaust part for allowing said downstream side duct to open to an outside air to forcibly discharge air in said substrate housing parts to the outside air, thereby allowing the air for cooling to flow to said substrate housing parts; a housing unit (110) detachably installed in said downstream side duct; and second exhaust means ('73b' of part 110, see figure 2 and 3) for allowing the air for cooling to flow from said downstream side duct into said housing unit by exhausting air from a second exhaust part (outlet of '73b' of part 110) for allowing said housing unit to open to the outside air.

- Regarding claim 20, Nguyen discloses an information processing equipment (column 1, lines 36-41) comprising: substrate (22) housing parts installed in a housing to detachably house therein substrate units (120); an upstream side duct (96) provided at the upstream side of air for cooling which is allowed to flow to said substrate housing parts; a downstream side duct (98) for allowing the air for cooling, which passed through said substrate housing parts from said upstream side duct, to flow; an intake part (marked in figure) for guiding the air for

cooling to said upstream side duct: an exhaust part (marked in figure) for exhausting the air for cooling from said downstream side duct; exhaust means ('73b' of parts 106 and 108, see figure 2 and 3) installed in said exhaust part for forcibly discharging air in said housing to an outside air to allow the air for cooling to flow to said substrate housing parts; and air adjusting means (88) for adjusting the air for cooling which flows from said upstream side to said downstream side duct through said substrate housing parts.

- Regarding claim 21, Nguyen further discloses that the housing unit is provided with an intake part which is allowed to open to said downstream side duct (intake part is allowed to open to the downstream side duct through the substrate housing part), and intake fans ('73a' of parts 106 & 108, see figure 2 and 3) are installed at said intake part.
- Regarding claim 22, Nguyen discloses an information processing equipment (column 1, lines 36-41) comprising: substrate (22) housing parts for detachably housing therein substrate units (120) from a wall face side of a housing; an upstream side duct (96) provided at the upstream side of air for cooling which is allowed to flow to said substrate housing parts; a downstream side duct (98) for allowing the air for cooling, which passed through said substrate housing parts from said upstream side duct, to flow; a ventilation part (102) provided at the

wall face of said housing for allowing said upstream side duct to open to an outside air; a first exhaust part provided at the wall face of said housing for allowing said downstream side duct to open to the outside air; first exhaust means ('73b' of parts 106 and 108, see figure 2 and 3) provided at said first exhaust part to forcibly discharge air in said housing to the outside air to allow the air for cooling to flow to said substrate housing parts; air adjusting means (88) for adjusting the air for cooling which flows from said upstream side duct to said downstream side duct through said substrate housing part; a housing unit (110) installed on said downstream side duct for housing a circuit unit; and second exhaust means ('73b' of part 110) provided in said housing unit or housing for exhausting air from the second exhaust part (outlet of '73b' of part 110) of said housing by allowing the air for cooling to flow to said housing unit.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al in view of Varghese et al. (PGPubs 2001/0037985 A1).
- Regarding claim 4, Nguyen et al. disclose all the limitations of claim 1, and further disclose first and second substrate housing frame bodies ('14', '16', column 3, lines 48-50), and that the substrate housing parts are installed in said substrate housing frame bodies. Nguyen does not explicitly say that these frame bodies are detachably provided in the housing. Varghese et al. disclose an electronic equipment enclosure where the first and second substrate housing frame bodies (marked 56 and 54 in figure 3, see also figure 4) are detachably provided in said housing. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the detachable substrate housing frame bodies as taught by Varghese et al. in the housing disclosed by Nguyen et al, to easily insert and extract the substrate units.
  - Regarding claim 15, Nguyen et al. disclose all the limitations of claim 12, and further disclose first and second substrate housing frame bodies ('14', '16', column 3, lines 48-50), and that the substrate housing parts are installed in said substrate housing frame bodies. Nguyen does not explicitly say that these frame bodies are detachably provided in the housing. Varghese et al. disclose an electronic

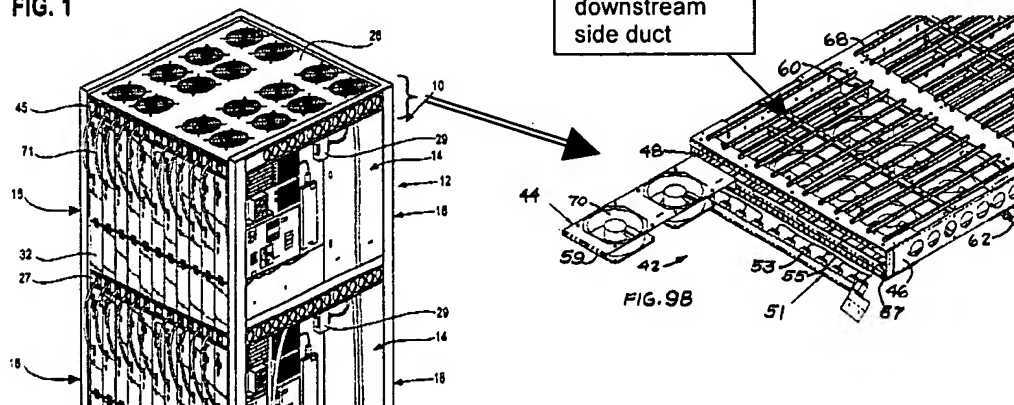
equipment enclosure where the first and second substrate housing frame bodies (marked 56 and 54 in figure 3, see also figure 4) are detachably provided in said housing. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the detachable substrate housing frame bodies as taught by Varghese et al. in the housing disclosed by Nguyen et al, to easily insert and extract the substrate units.

4. Claims 6 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al in view of Blake (US Patent 6,188,189 B1).
  - Regarding claim 6, Nguyen et al. disclose all the limitations of claim 1 and further disclose a motor for driving said exhaust means (column 4, lines 43-44). Nguyen et al. does not disclose means for controlling the speed of the fan. Blake discloses control means for controlling a driving input relative to said motor to control the number of revolution (see abstract). At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the fan speed control mechanism as taught by Blake in the cooling structure of an electronic equipment as disclosed by Nguyen et al., to actively control the quantity of air flow through the housing as a function of temperature of the components within it.

- Regarding claim 17, Nguyen et al. disclose all the limitations of claim 12 and further disclose a motor for driving said exhaust means (column 4, lines 43-44). Nguyen et al. does not disclose means for controlling the speed of the fan. Blake discloses control means for controlling a driving input relative to said motor to control the number of revolution (see abstract). At the time of the invention, it would have been obvious to one of ordinary skill in the art to incorporate the fan speed control mechanism as taught by Blake in the information processing equipment as disclosed by Nguyen et al., to actively control the quantity of air flow through the housing as a function of temperature of the components within it.

5. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al in view of Smith et al. (US Patent 6,801,428 B2).

FIG. 1



- Regarding claim 8, Nguyen et al. discloses all the limitations of claim 7. Nguyen et al. does not disclose that the second exhaust part of the said housing unit and the downstream side duct are partitioned. Smith et al. disclose an electronic equipment cooling structure where second exhaust part of the housing unit side and the downstream side duct are partitioned to have an exhaust guide for intercepting exhaust air at the housing unit side from said downstream side duct. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the exhaust guide as taught by Smith et al. in the cooling structure of an electronic equipment as disclosed by Nguyen et al., for exhausting the hot air inside the enclosure more efficiently.
- Regarding claim 19, Nguyen et al. discloses all the limitations of claim 18. Nguyen et al. does not disclose that the second exhaust part of the said housing unit and the downstream side duct are partitioned. Smith et al. disclose an electronic equipment cooling structure where second exhaust part of the housing unit side and the downstream side duct are partitioned to have an exhaust guide for intercepting exhaust air at the housing unit side from said downstream side duct. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to incorporate the exhaust guide as taught by Smith et al. in the information processing equipment as disclosed by



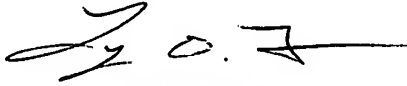
Nguyen et al., for exhausting the hot air inside the enclosure more efficiently.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Biju Chandran whose telephone number is (571) 272-5953. The examiner can normally be reached on 8AM - 5PM. Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**LYNN FEILD**  
**SUPERVISORY PATENT EXAMINER**